CLAIMS:

1. A method for preparing a compound comprising a plurality of cucurbituril groups, the method comprising the steps of:

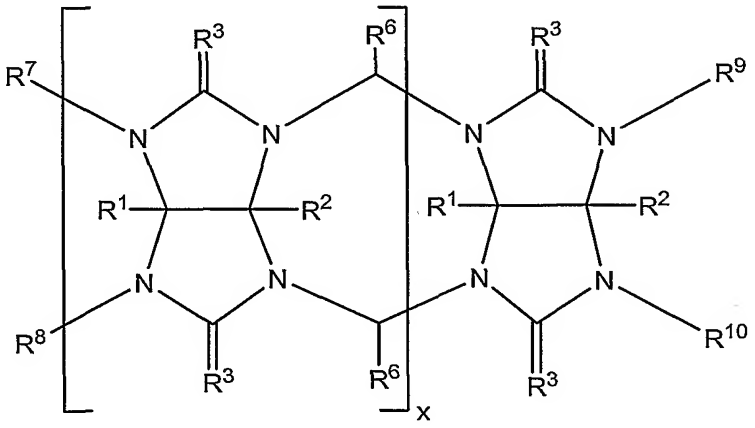
(a) forming a mixture comprising one or more compounds of the formula (1)

A-L-A (1)

wherein:

L is a linking group; and

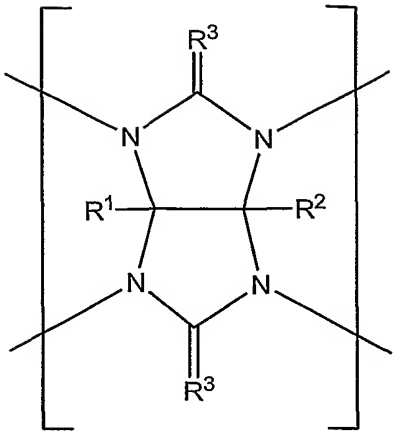
each A is independently selected and is a group of the formula (A)



(A)

wherein:

for each unit of the formula (B)



(B)

in formula (A),

R^1 and R^2 may be the same or different, and are each independently selected from a bond with L or a univalent radical, or

R^1, R^2 and the carbon atoms to which they are bound together form an optionally substituted cyclic group, or

R^1 of one unit of the formula (B) and R^2 of an adjacent unit of the formula (B) together form a bond or a divalent radical,

and

each R^3 is independently selected from the group consisting of =O, =S, =NR', =CXZ, =CZR', =CXR" and $=CZ_2$, wherein Z is an electron withdrawing group, X is halo, and R' is selected from the group consisting of a bond with L, H, an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical, or an optionally substituted heterocyclyl radical, and R" is a bond with L;

each R^6 is independently selected from the group consisting of a bond with L, H, alkyl and aryl;

R^7 and R^8 may be the same or different and are

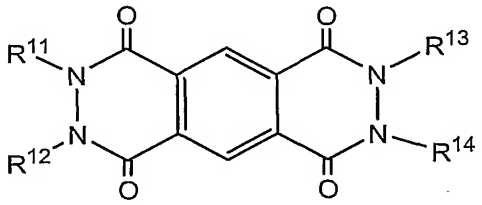
independently selected from the group consisting of H and $-CHR^6OR^6$, or R^7 and R^8 together form the group $-CHR^6-O-CHR^6-$, where each R^6 is independently selected from the group consisting of a bond with L, H, alkyl and aryl;

R^9 and R^{10} may be the same or different and are independently selected from the group consisting of H and $-CHR^6OR^6$, or R^9 and R^{10} together form the group $-CHR^6-O-CHR^6-$, where each R^6 is independently selected from the group consisting of a bond with L, H, alkyl and aryl; and

x is 0 or an integer from 1 to 10;
provided that at least one R^1, R^2 or R^6 is a bond with L or at least one R^3 is =NR", =CZR" or =CXR" where R" is a bond with L; and
an acid; and

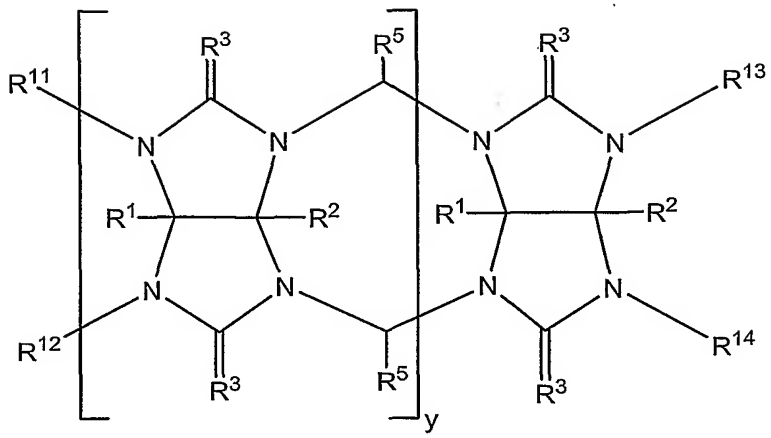
(b) exposing the mixture to conditions effective for at least some of the groups A to react to form cucurbituril groups, thereby forming a compound comprising a plurality of cucurbituril groups.

2. A method according to claim 1, wherein the mixture further comprises one or more compounds selected from compounds of the formula (6):



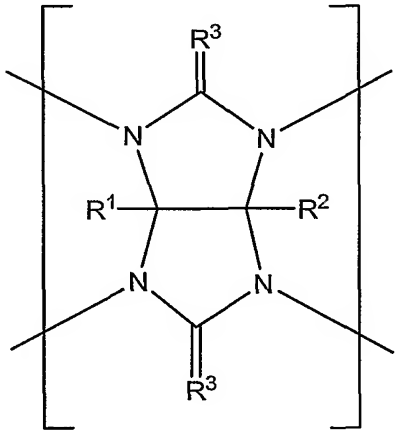
(6)

and compounds of the formula (2):



(2)

wherein:
for each unit of the formula (B):



(B)

in the compound of formula (2),
R^1 and R^2 may be the same or different, and are each a univalent radical, or
R^1, R^2 and the carbon atoms to which they are bound together form an optionally substituted cyclic group, or
R^1 of one unit of the formula (B) and R^2 of an adjacent unit of the formula (B) together form a bond or a divalent radical,
and
each R^3 is independently selected from the group consisting

of =O, =S, =NR, =CXZ, =CRZ or $=CZ_2$, wherein Z is an electron withdrawing group, X is halo, and R is H, an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical, or an optionally substituted heterocyclyl radical;

each R^5 in formula (2) is independently selected from the group consisting of H, alkyl and aryl;

R^{11} and R^{12} may be the same or different and are independently selected from the group consisting of H and $-CHR^5OR^5$, or R^{11} and R^{12} together form the group $-CHR^5-O-CHR^5-$, where each R^5 is independently selected and is as defined above,

R^{13} and R^{14} may be the same or different and are independently selected from the group consisting of H and $-CHR^5OR^5$, or R^{13} and R^{14} together form the group $-CHR^5-O-CHR^5-$, where each R^5 is independently selected and is as defined as above; and

y is 0 or an integer from 1 to 9;

and wherein at least some of the cucurbituril groups formed are formed from a group A of one molecule of the formula (1), a group A of at least one other molecule of the formula (1) and one or more molecules of formula (2) or (6).

3. A method according to claim 1 or 2, wherein step (b) comprises heating the mixture to a temperature from 20°C to 120°C.

4. A method according to claim 1 or 2, wherein step (b) further comprises contacting the one or more compounds of the formula (1) with a compound that can form bridges between groups A, and between a group A and a compound of

formula (2) or (6), and heating the mixture to a temperature from 20°C to 120°

5. A method according to claim 4, wherein the compound that can form bridges between groups A, and between a group A and compound of formula (2) or (6), is selected from the group consisting of compounds of the formula R^5COR^5 wherein each R^5 is independently selected from the group consisting of H, alkyl and aryl, compounds of the formula $R^5OC(R^5)_2OR^5$ wherein each R^5 is independently selected from the group consisting of H, alkyl and aryl, trioxane, optionally substituted 3,4-dihydropyran and optionally substituted 2,3-dihydrofuran.

6. A method according to claim 4, wherein the compound that can form bridges between groups A, and between a group A and compound of formula (2) or (6), is formaldehyde.

7. A method according to any one of claims 1 to 6, wherein R^3 is O and R^6 is H.

8. A method according to any one of claims 1 to 7 wherein L is a polymer.

9. A method according to any one of claims 1 to 7 wherein L is a group of the formula $-(CR_2)_a-(E-(CR_2)_b-)_c(CR_2)_d-$ or $-(CR_2)_a-(E-(CR=CR)_b-)_c(CR_2)_d-$ wherein:
E is –O-, -NR-, -S-, a saturated or unsaturated divalent hydrocarbon radical, or an optionally substituted aliphatic or aromatic divalent heterocyclyl radical;
R is H, an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical or an optionally substituted heterocyclyl radical; and
a, b, c and d are each 0 or an integer from 1 to 30; provided that not all of a, b, c and d are 0.

10. A method according to any one of claims 1 to 7 wherein L is $-(CH_2)_n-$, $-(CH=CH)_n-$, -O-, -NH-, $-CH_2-NH-$, $-CH(CH_3)(CH_2)_nCH(CH_3)-$ or $-(CH_2)_n-N(CH_3)CH_2CH_2N(CH_3)-(CH_2)_p-$, where n and p are an integer.

11. A compound comprising a plurality of cucurbituril groups produced by the method of any one of claims 1 to 10.